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US 4425861 A

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(54) Abstract Title

**Boat with a cockpit of variable size**

(57) A boat comprises a hull and a cockpit 2 at the stern of the boat defined by a wall structure 22, 23 and 24 at the perimeter of a cockpit deck 21. A rear part 24 of the wall structure is arranged to move rearwardly to increase the area of the cockpit deck. The rear part of the wall may be carried on a carriage 3 which is moved by means of a powered actuator (9, Fig 5) from a forward position in which the carriage is positioned above the stern of the hull to a rearward position in which the carriage is cantilevered beyond the stern of the hull. The carriage may also incorporate an aft deck 31 behind the cockpit which is accessible from the cockpit deck by means of a walk-through aperture 6 in the wall structure.

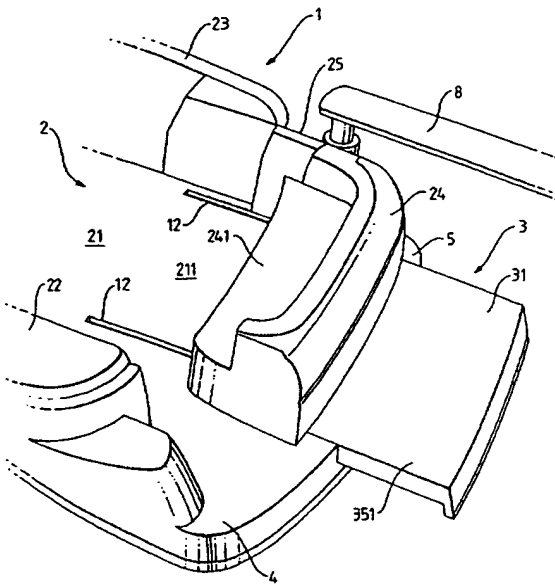


FIG. 2

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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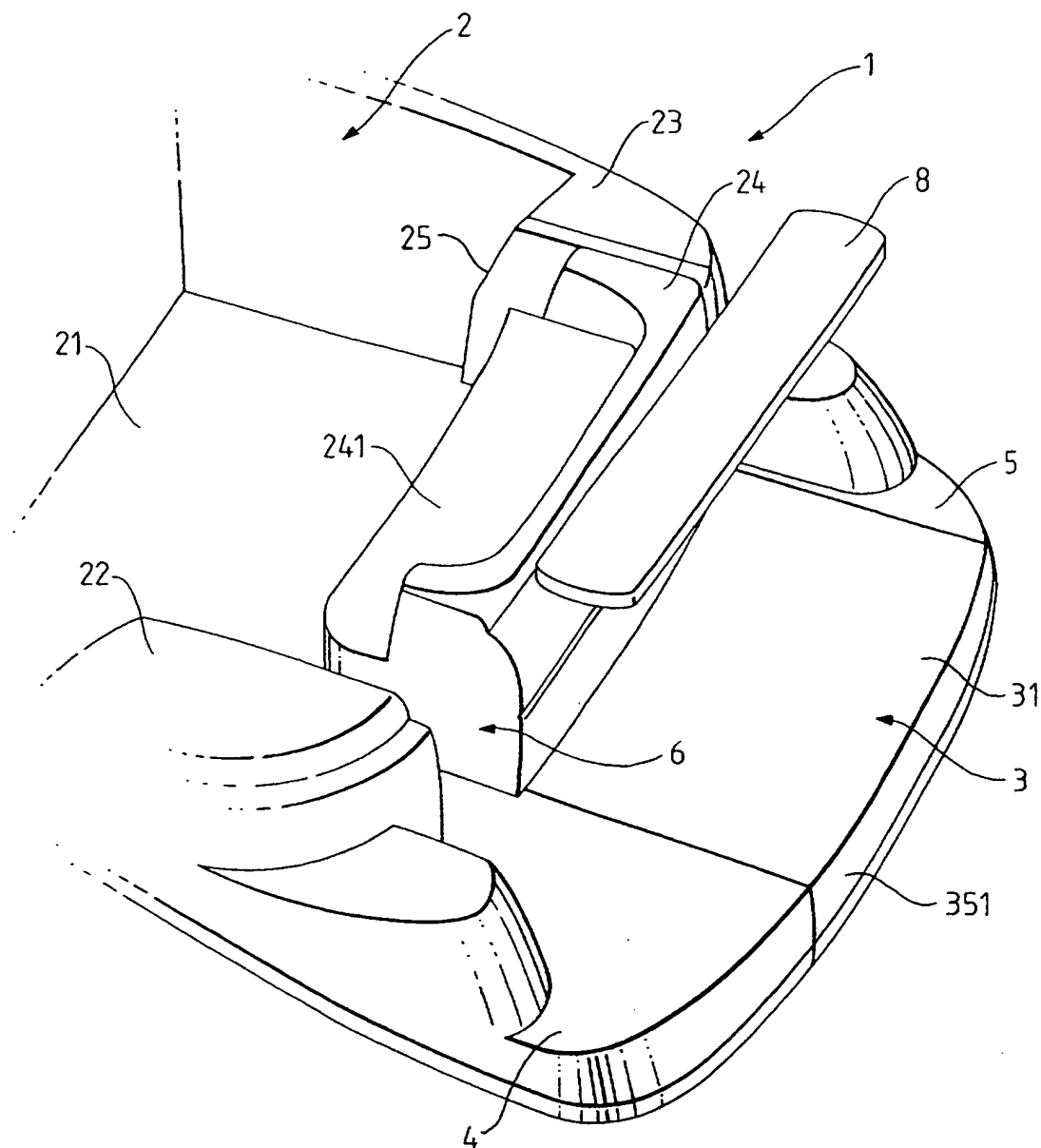


FIG. 1

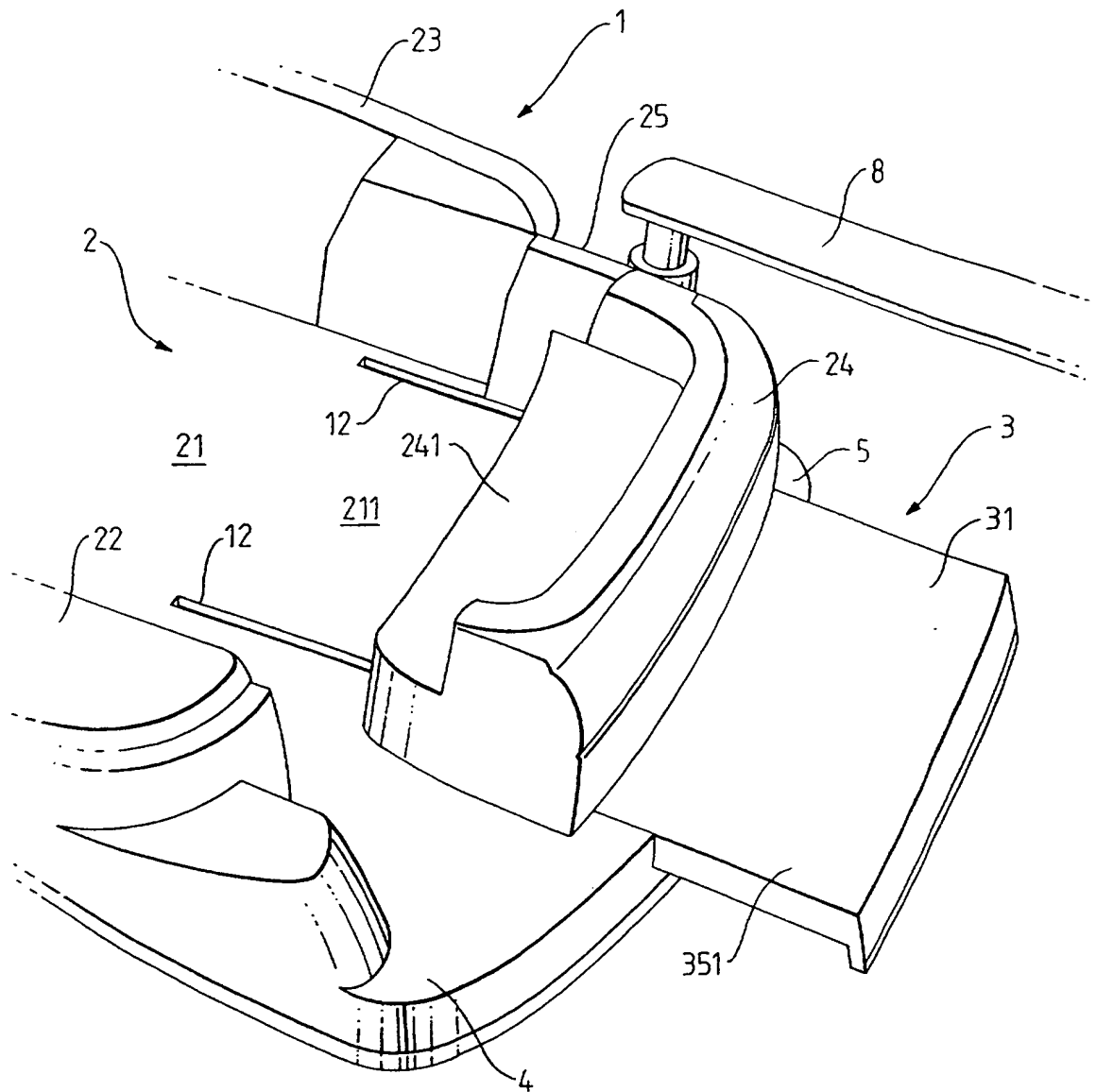


FIG. 2

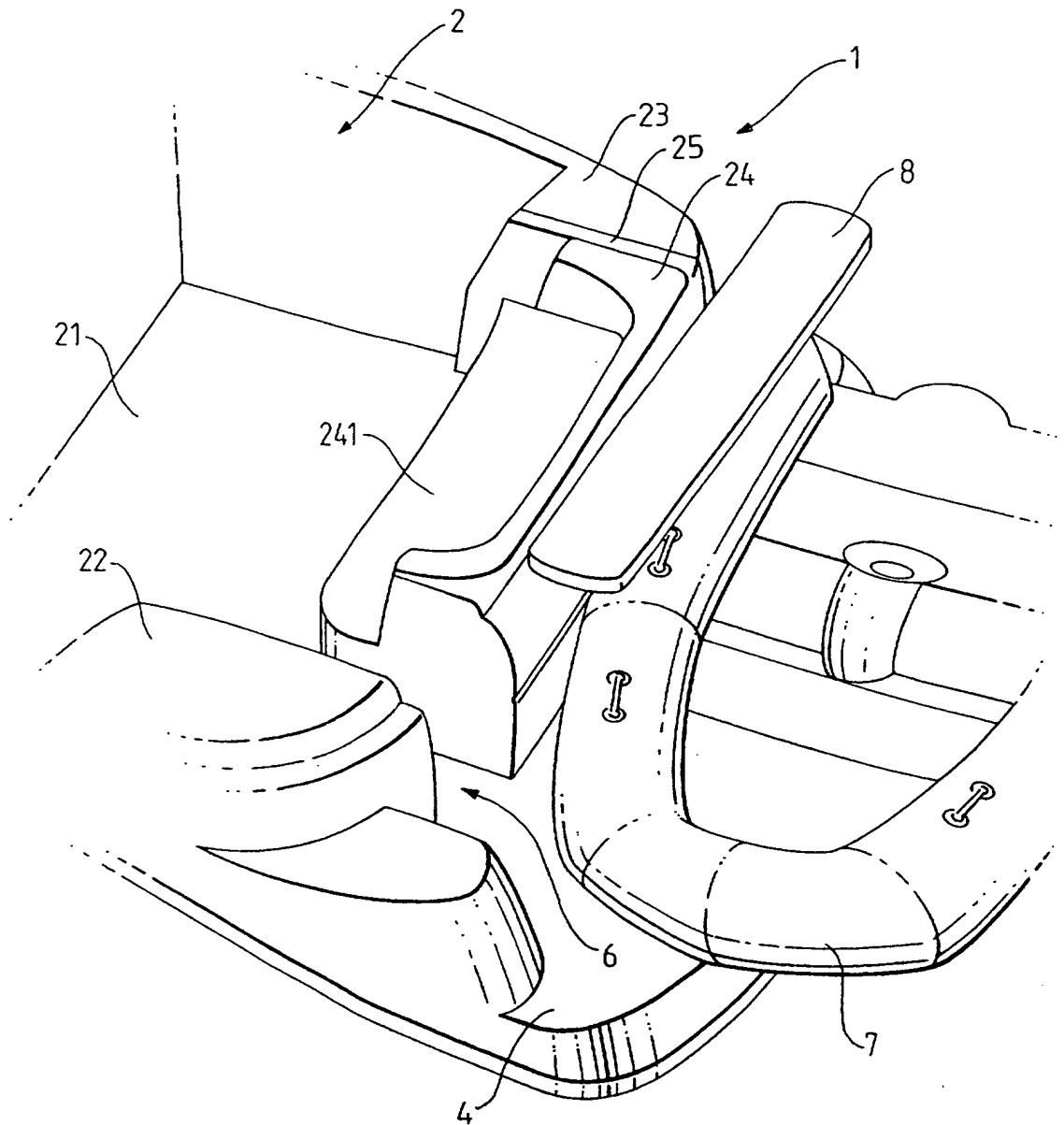


FIG. 3

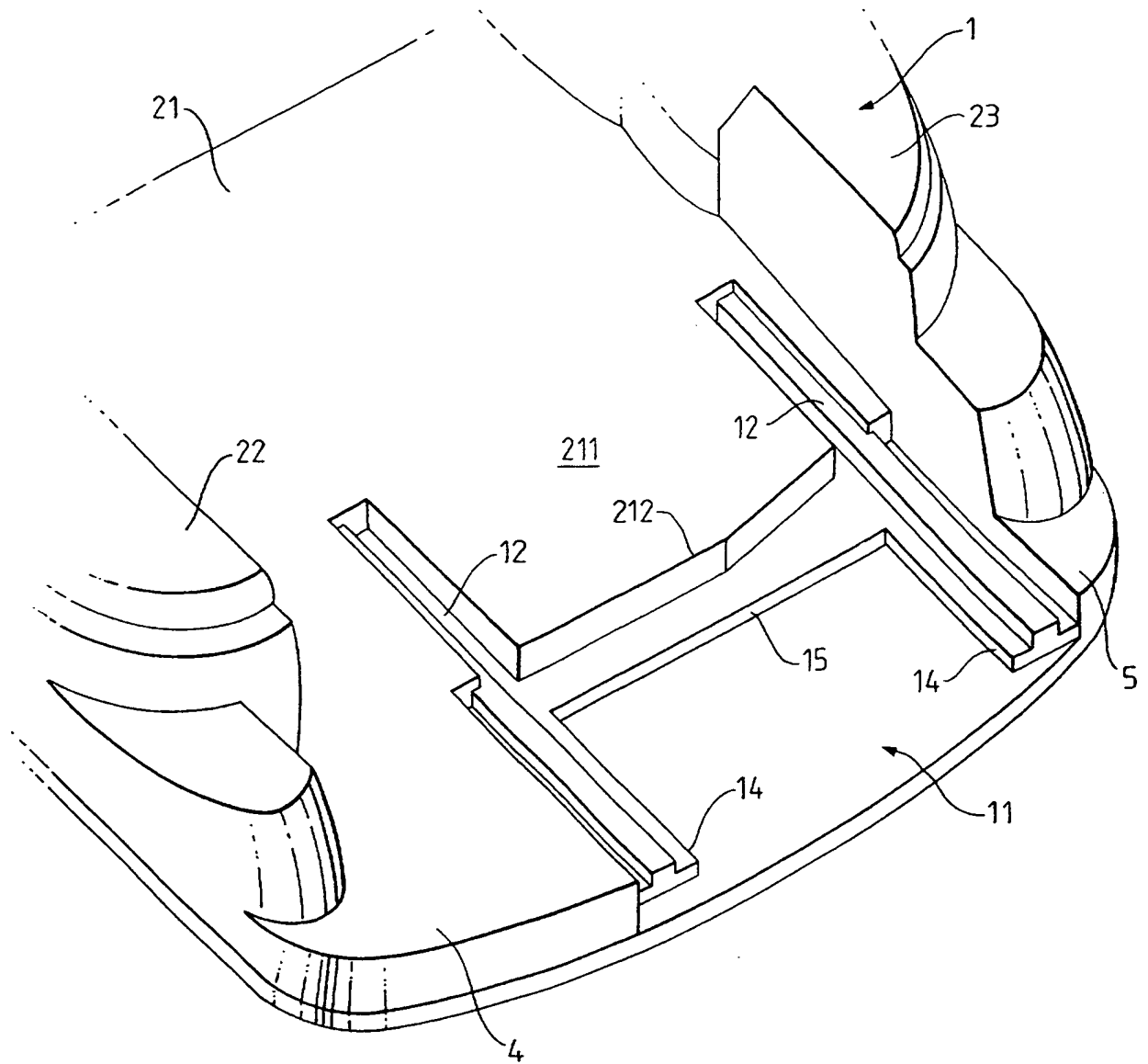


FIG. 4

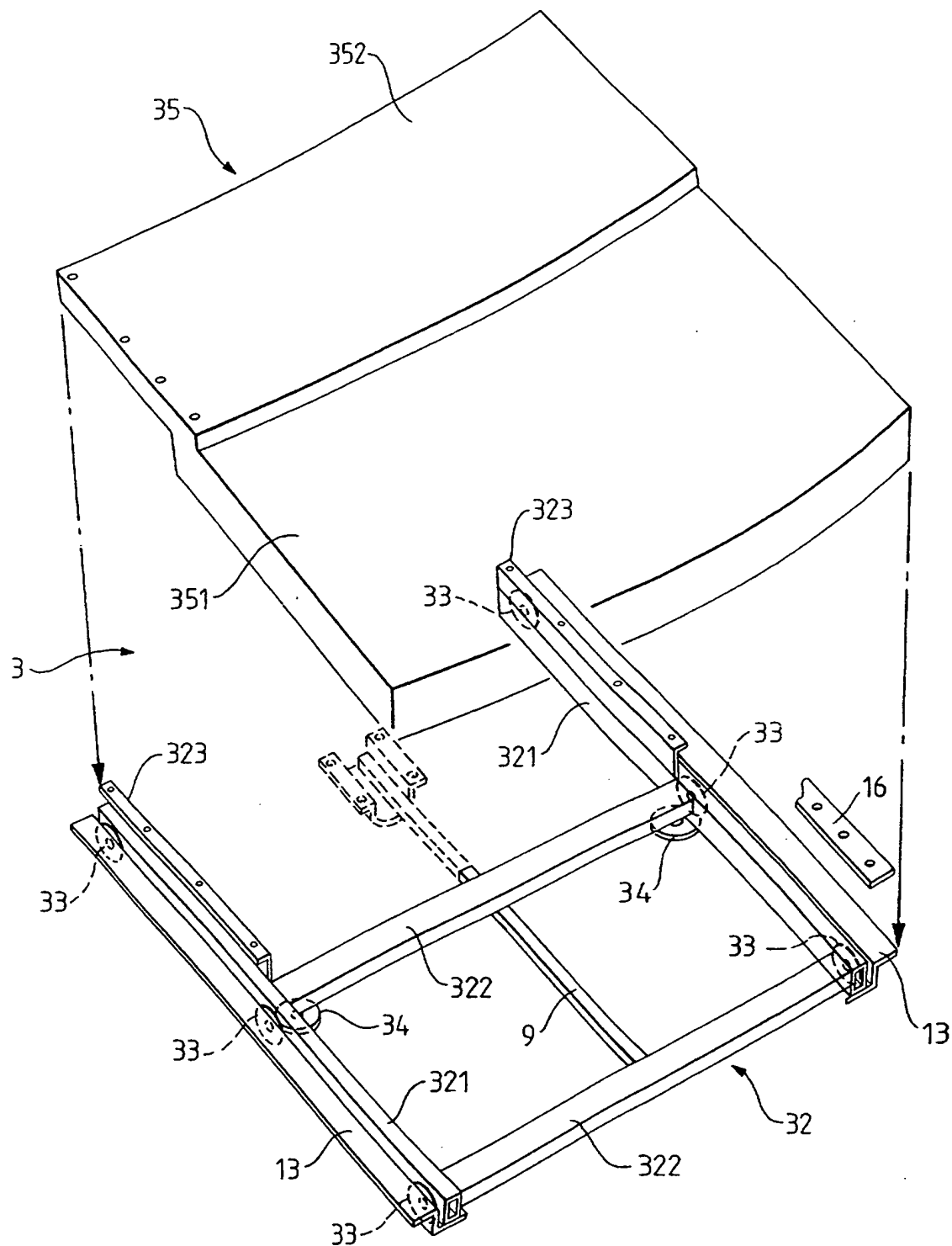


FIG. 5

## BOAT

### BACKGROUND OF THE INVENTION

The invention relates generally to a boat, and to improving the functioning of a cockpit at the rear of the boat.

5        It is usual for there to be a cockpit at the rear of a boat, such as a motor cruiser. The cockpit may be used for controlling the boat and also for relaxation purposes. For example, controls may be provided at the front of the cockpit for controlling the steering and the engines. The cockpit may also be used for relaxation or leisure purposes by incorporating comfortable seating around the perimeter of the cockpit.

10        It is usual for a leisure boat to have a small tender for use, for example, when the boat is in a harbour for ferrying the crew and supplies to and fro between the boat and the dockside of the harbour. It is desirable to be able to stow the tender on the stern of the boat when the boat is moving. For this purpose, an aft platform or deck is commonly provided behind the cockpit on which the tender may be partially or wholly  
15        seated. The larger the size of the aft deck, the more securely the tender may be stowed on the boat, in that less or none of the tender needs to project over the stern of the boat.

Unfortunately, the larger the size of the aft deck to accommodate the tender, the further forward needs to be situated the rear wall of the cockpit and thus the smaller becomes the size of the cockpit itself.

### 20        SUMMARY OF THE INVENTION

According to the present invention, there is provided a boat comprising:

a hull; and

a cockpit at the stern of the boat defined by a wall structure at the perimeter of  
a cockpit deck;

25        wherein a rear part of the wall structure is arranged to move rearwardly to increase the area of the cockpit deck.

Thus, during transit of the boat, when a large size of cockpit is not needed for recreational purposes, the wall structure may be positioned at its forward position. When the boat is moored, and a large size of cockpit is desired for recreational use, the  
30        wall structure may be moved rearwardly to increase the area of the cockpit deck that is available for use.

Preferably, said rear part of the wall structure is mounted on a carriage which is arranged to slide rearwardly to move said rear part of the wall structure rearwardly to increase the area of the cockpit deck. The use of a carriage is a convenient way of mounting the moveable part of the wall structure.

5 In the preferred embodiment, the carriage has a deck and there is an aft deck behind the cockpit and the carriage deck forms at least part of the aft deck. This aft deck may be used for a variety of purposes. For example, in transit, the tender may be stored on the aft deck. When moored, the aft deck may be used as a bathing platform. The tender may be stowed on the moveable carriage-deck part of the aft deck so that  
10 positioning the moveable deck part at its rearward position may be used to assist in launching and recovering the tender. Also, the moveable deck part in its rearward position may be used as a rearwardly-projecting bathing platform which projects back beyond the stern of the hull, somewhat in the manner of a diving board.

Preferably, the cockpit deck communicates with the aft deck via a walk-  
15 through aperture in the wall structure of the cockpit.

It is preferred that the cockpit deck and the aft deck comprise a single surface which does not include any steps that change the level and might be hazardous by causing people to trip. The walk-through aperture therefore provides a convenient way of allowing the cockpit deck to lead through to the aft deck, all at the same level.

20 Preferably, the walk-through aperture provides communication between the cockpit deck and a static part of the aft deck. It is preferred that the aft deck comprises not just the moveable part provided by the carriage deck, but also one or more static parts. For example, a static part may be positioned at one side of the stern, and the moveable part may be positioned at the centre and the other side of the stern. In other  
25 words, the moveable part of the aft deck is asymmetrically positioned relative to the longitudinal centre line of the boat.

Preferably, in the forward position of the carriage the carriage deck has its rear end positioned above the stern of the hull, and in the rearward position of the carriage the carriage deck has its rear end cantilevered back beyond the stern of the hull. In the  
30 forward position, the rear end of the carriage deck may be flush with adjacent parts of the hull, so that the separate nature of the carriage deck is not immediately apparent. It is only when the carriage slides back rearwardly that the carriage deck appears to



break out of the overall envelope of the hull, and project in the manner of a platform back beyond the stern of the hull.

Whilst the rear part of the wall structure, and the carriage, may be arranged to be moved by a manual mechanism, it is preferred that powered actuator means are provided for shuttling the carriage between its forward and rearward positions.

In a preferred embodiment, when the carriage is in its forward position an area of the cockpit deck projects rearwardly under said rear part of the wall structure, and when the carriage is in its rearward position said area of the cockpit deck is exposed and runs back to the front of said rear part of the wall structure. This helps to maintain the integrity or continuity of the cockpit deck as the rear part of the wall structure is moved backwards, so that no major void or pit is exposed as the rear part of the wall structure slides backwards.

Preferably, said rear part of the wall structure includes seating which faces into the cockpit. The occupants of this seating are therefore able to benefit from the enhanced perception of the increased cockpit size, and are more likely to be able to be in the sun rather than the shade.

#### BRIEF DESCRIPTION OF THE DRAWINGS

A preferred non-limiting embodiment of the present invention will now be described with reference to the accompanying diagrammatic drawings.

Fig. 1 is a perspective view of the stern of a boat in accordance with the present invention, showing a rear part of a cockpit wall structure in its forward position.

Fig. 2 is a view similar to Fig. 1, but showing the rear part of the cockpit wall structure in a deployed or rearward position.

Fig. 3 is a view similar to Fig. 1, but showing a tender stowed on an aft deck.

Fig. 4 is a view similar to Fig. 1, but with the moveable components removed.

Fig. 5 is an exploded view of a moveable carriage removed from the context of what is shown in Fig. 4.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 is a perspective view looking down on the rear of a boat. It shows the rear upper superstructure 1 which fits onto the top of a hull (not shown). The superstructure 1 is made of G.R.P. and includes a rear cockpit 2 having a cockpit floor

or deck 21 which is generally rectangular and which has, along its perimeter, a wall structure comprising a left side wall 22, a right side wall 23 and a moveable rear wall 24. The wall structure provided by the walls 22-24 gives the cockpit 2 its appearance of being recessed or sunken down into the rear upper superstructure 1.

5       The walls 22-24 only extend part of the way around the cockpit. Although not shown, the cockpit 2 at its front end usually contains features such as a wall having a door aperture into a cabin, a set of steps up or down to a different level of the boat and/or controls for the steering and the engine(s).

10       The moveable rear wall 24 is shaped to have a forward facing seat 241 extending along the major part of the length of the rear wall 24. The seat 241 faces into the cockpit 2 and thus may be used by persons who wish to socialise with other people in the cockpit.

15       The moveable rear wall 24 is fixed on top of a moveable carriage 3 at the front end of the carriage. The carriage 3 is able to slide longitudinally of the boat between a forward or stowed position shown in Fig. 1, and a rearward or extended position shown in Fig. 2 in which the rear part of the carriage projects backwards beyond the stern of the hull. The carriage 3 carries the rear wall 24 with it, causing the rear wall to slide between the forward and rearward positions shown in Figs. 1 and 2 respectively. As may be seen by comparing Figs. 1 and 2, the rearward position of the rear wall 24 is such as to result in an increase in the area of the cockpit deck 21 that is exposed for use, and a consequential increase in the overall volume of the cockpit 2 that is usable by the occupants of the cockpit.

25       The wall structure of the cockpit 2 also includes a sliding wall element 25 which is loosely coupled to the moveable rear wall 24 so as to partially move therewith. This wall element is provided because, in the rearward position, the front of the rear wall 24 moves back beyond the rear of the adjacent side wall 23. Without the wall element 25, this would open up an aperture which might be a hazard. For example, such an aperture could trap a leg or fingers of a person sitting on the seat 241 as the rear wall 24 is moved from its rearward position to its forward position. It is to prevent this from happening that the wall element 25 is provided to blank off such a potential aperture and prevent such an aperture from opening up and closing. The adjacent parts of the side wall 23 and rear wall 24 have a substantially uniform

common height. This is also the height of the wall element 25. This overall commonality of height provides a pleasing appearance and helps to avoid any small openings being created and then disappearing which could trap fingers and the like.

5 The wall element 25 is loosely coupled to the moveable rear wall 24 to move backwards and forwards therewith. The overall arrangement is such that, in the fully rearward position, the front part of the wall element 25 overlaps the rear part of the side wall 23, and the rear part of the wall element 25 still overlaps the front part of the rear wall 24. With the provision of the wall element 25, the stroke or length of movement of the moveable rear wall 24 may be safely made greater than the thickness  
10 of the rear wall 24 in the longitudinal direction of the boat.

Referring to Fig 1, an aft deck is provided to the rear of the cockpit 2. The aft deck comprises a static deck portion 4 on the left hand side of the boat, a rear carriage deck 31 of the carriage 3 positioned generally centrally of the boat but slightly offset to the right hand side, and a small static deck portion 5 on the right hand side of the boat.  
15 The static deck portion 4 continues forwards through a walk-through aperture 6 between the left side wall 22 and the left end of the moveable rear wall 24, until the deck portion 4 meets the cockpit deck 21. All of the deck elements 21, 4, 5 and 31 lie generally on the same surface which has an overall smooth appearance without being interrupted by any steps or changes in level which might present a tripping hazard.

20 In the forward position of the rear wall 24 and carriage 3, which will usually be adopted during transit of the boat, the aft deck may be used to carry a tender such as a dinghy, as is shown in Fig. 3. When the boat is not under way, such as when it is moored in a harbour, the rear wall 24 and carriage 3 may be moved to the rearward or extended position shown in Fig. 2. From this position, or before reaching this position,  
25 the tender 7 may be launched using an existing commercially-available launching and recovery device 8, such as a so-called pasarelle. This is pivotally mounted on a rearward extension of the right side wall 23 and may pivot round from its transverse stowed position to a longitudinal deployed position shown in Fig. 2, in order to lift up the tender 7 and swing it off the aft deck so as to deploy the tender on the water. The  
30 operation may be reversed in order to recover and stow the tender 7. The pasarelle is also able to function as a gang plank, in that it can pivot its free end up and down in a addition to pivoting about the main generally vertical axis.

In order to provide a visually pleasing appearance and so as to hide the fact that the rear wall 24 can be moved, the rear surface of the rear wall 24 is arranged so that in its forward position it blends into or sweeps round in a smooth manner from the adjacent rear surfaces of the adjacent wall element 25 and right side wall 23.

5        The structure of the carriage 3 will now be discussed with reference to Figs. 4 and 5. Fig. 4 shows the situation where the carriage 3 has been removed from the rear upper superstructure 1. Fig. 5 shows the components of the carriage 3.

10        The carriage 3 has a metal alloy (e.g. stainless steel) frame 32 comprising two longitudinal box-section side members 321 connected together by two transverse box-section members 322. The frame 32 is supported on six wheels 33 having generally horizontal axes. To prevent unwanted or excessive transverse movement, two guide wheels 34 are also provided on the frame, and are rotatable about generally vertical axes.

15        The transverse members 322 are positioned away from the front end of the carriage 3. The carriage 3 also comprises a platform 35 comprising a rear lower portion 351 and a forward raised portion 352. The rear lower portion 351 is secured onto the top parts of the rear ends of the longitudinal members 321. Spacers 323 are fitted to the front ends of the longitudinal members 321 and support the underside of the forward raised portion 352 of the platform 35 at its raised level relative to the rear lower portion 351.

20        The top surface of the rear lower portion 351 provides the rear carriage deck 31.

25        Referring to Fig. 4, the rear superstructure 1 contains a recess 11 having a generally rectangular rear part and two forwardly-projecting slots 12. Two Z-shaped alloy rails 13 are fixed in the recess 11 so that the front ends of the rails 13 project into the slots 12. These rails 13 guide the forward and backward movement of the carriage 3.

30        The wheels 33 ride on the lower flanges of the rails 13. The two guide wheels 34 cooperate with guide surfaces 14 below the rails 13 in order to restrain unwanted sideways movement of the carriage 2. The guide wheels 34 may also be used to prevent movement beyond the desired forward position by coming up against a forward surface 15.

A longitudinal retaining plate 16 is fitted to the upper flange of each rail 13 in order to prevent unwanted lifting out of the carriage 3 from the recess 11.

In the forward position of the carriage 3, the forward raised portion 352 of the platform 35 projects over and covers an area 211 of the cockpit deck 21. In the  
5 rearward position of the carriage 3, most of the area 211 is then exposed so as to form a useful part of the cockpit deck 21, but the arrangement is such that the forward end of the raised portion 352 does not pull back beyond a rear lip 212 of the area 211, so as not to create a recess which could trap items when returning the carriage 3 from its rearward position to its forward position.

10 The retaining plates 16 are shaped, at least at their forward ends, to largely blank off the parts of the slots 12 that become uncovered, upon rearward movement of the carriage 3, with decking on top of the retaining plates 16 being substantially level with the adjacent parts of the cockpit deck 21. It is however necessary to leave narrow  
15 slits to accommodate the vertical webs of the spacers 323. Overall, the arrangement is such that no large depressions or potentially dangerous traps are exposed upon rearward movement of the carriage 3.

The rear wall 24 is mounted on the forward raised portion 352 of the platform 35.

As may be seen from Fig. 1, the rear part of the platform 35 is shaped so as to  
20 be substantially flush with the adjacent parts of the boat when in its forward or stowed position.

A powered actuator 9 (shown in Fig. 5) is used to extend the platform 35 beyond the rear end or stern of the hull by rearwardly moving the carriage 3, by rearwardly pushing on the frame 32. The operation of the actuator 9 may be controlled  
25 by a control panel conveniently provided in the cockpit 2.

In the extended position of the platform 35 as shown in Fig. 2, the platform 35 may function as a bathing platform for getting into and getting out of the water around the stern of the boat.

The stroke of the actuator 9 and thus reciprocating distance of the movement of  
30 the carriage 3 is approximately 76 cm (30 inches).

When rearwardly moving the carriage 3 and rear wall 24, the tender 7 may if desired be left on the rear carriage deck 31, if the tender is not to be used at that time.

The launching and recovery device 8 would simply be swung out of the way to the position shown in Fig. 2 without actually being used to launch the tender. With the tender still in position, effectively only the static deck portion 4 would be available for use as a bathing platform.

5           It will be appreciated that the above description is non-limiting and refers to the currently-preferred form of the invention. Many modifications may be made within the scope of the invention. Although features believed to be of particular significance are identified in the appended claims, the applicant claims protection for any novel  
10           feature or idea described herein and/or illustrated in the drawings, whether or not emphasis has been placed thereon.

15

20

CLAIMS

1. A boat comprising:  
a hull; and  
a cockpit at the stern of the boat defined by a wall structure at the  
5 perimeter of a cockpit deck;  
wherein a rear part of the wall structure is arranged to move rearwardly  
to increase the area of the cockpit deck.
2. A boat according to Claim 1, wherein said rear part of the wall structure  
10 is mounted on a carriage which is arranged to slide rearwardly to move said rear part  
of the wall structure rearwardly to increase the area of the cockpit deck.
3. A boat according to Claim 2, wherein the carriage has a deck and there  
is an aft deck behind the cockpit and the carriage deck forms at least part of the aft  
15 deck.
4. A boat according to Claim 3, wherein the cockpit deck communicates  
with the aft deck via a walk-through aperture in the wall structure of the cockpit.
- 20 5. A boat according to Claim 4, wherein the walk-through aperture  
provides communication between the cockpit deck and a static part of the aft deck.
6. A boat according to any one of Claims 3 to 5, wherein a tender is  
carried by the moveable carriage deck part of the aft deck.  
25
7. A boat according to any one of Claims 3 to 6, wherein in the forward  
position of the carriage the carriage deck has its rear end positioned above the stern of  
the hull, and in the rearward position of the carriage the carriage deck has its rear end  
cantilevered back beyond the stern of the hull.  
30

8. A boat according to any one of Claims 2 to 7, further comprising powered actuator means operable to move the carriage from its forward position to its rearward position.

5 9. A boat according to any one of Claims 2 to 8, wherein when the carriage is in its forward position an area of the cockpit deck projects rearwardly under said rear part of the wall structure, and when the carriage is in its rearward position said area of the cockpit deck is exposed and runs back to the front of said rear part of the wall structure.

10

10. A boat according to any preceding claim, wherein said rear part of the wall structure includes seating which faces into the cockpit.

11. A boat substantially as herein described with reference to, or with  
15 reference to and as illustrated in, the accompanying drawings.





Application No: GB 0121284.4  
Claims searched: 1 to 11

Examiner: Richard Collins  
Date of search: 12 October 2001

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B7A AEM, AGE, AGK.

Int Cl (Ed.7): B63B 15/00, 17/02, 29/00, 29/02.

Other: Online EPODOC, JAPIO, WPI.

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	US 4425861 A (RAIKAMO) see figures 3 to 6.	-

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.